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W05125

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Qec3/19/07

Analytical Data Package Prepared For

Pacific Northwest National Lab

Radiochemical Analysis By

STL Richland STLRL

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Data Package Contains _____ Pages

Report Nbr: 34658

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05125	S07-002	B1M7C8	J7B240193-1	JP3NE1AA	9JP3NE10	7059187
		B1M7C5	J7B240193-2	JP3NF1AA	9JP3NF10	7059187

Comments:



STL Richland 2800 George Washington Way Richland, WA 99354

Tel: 509 375 3131 Fax: 509 375 5590 www.stl-inc.com

Certificate of Analysis

Pacific Northwest National Laboratories Sigma V Building Richland, WA 99352

March 12, 2007

Attention: Dot Stewart

SAF Number : S07-002

Date SDG Closed : February 23, 2007

Number of Samples : Two (2)
Sample Type : Water
SDG Number : W05125

Data Deliverable : 15-Day / Summary

CASE NARRATIVE

I. Introduction

Between February 23, 2007 two water samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Pacific Northwest National Laboratories (PGW) specific IDs:

PGW ID#	STLR ID#	MATRIX	DATE OF RECEIPT
B1M7C8	JP3NE	WATER	2/23/07
B1M7C5	JP3NF	WATER	2/23/07

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

IV. The requested analyses were:

Liquid Scintillation CountingTritium by method RICH-RC-5007

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments Liquid Scintillation Counting

Tritium by method RICH-RC-5007:

The LCS, batch blank, samples and sample duplicate (B1M7C8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Sherry A. Adam Project Manager

STL RICHLAND 3

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFEREN						
Referenced Method	Isotope(s)	STL Richland's SOP number					
EPA 901.1	Cs-134, I-131	RICH-RC-5017					
EPA 900.0	Alpha & Beta	RICH-RC-5014					
EPA 903.1	Ra-226	RICH-RC-5005					
EPA 904.0	Ra-228	RICH-RC-5005					
EPA 905.0	Sr89/90	RICH-RC-5006					
ASTM D2460	Total Radium	RICH-RC-5027					
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058					
EPA 906.0	Tritium	RICH-RC-5007					
NOTE:							
The Gross Alpha LCS is prepared with Am-24							
The Gross Beta LCS is prepared with Sr/Y-90	(unless otherwise s	pecified in the case narrative)					

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_r) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

	Report Definitions
Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u _{c_} Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c the combined uncertainty. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than I may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[sqrt(TPUs^2 + TPUd^2)]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

3/12/200	7 1:08:54 PM	[ST	L Richla	ınd Rep	ort]	Lab Code: STLRL	weether, Paul and a series
FormNbi	r: R	FormatType: F	EAD Versi	on: 05	Rpt N	or: 34658	File Name	: h:\Reportdb\	edd\FeadIV\Rad\W051	25.Edd, h:\Re	eportdb\ed	ld\FeadIV\Rad\34658.E	Edd
Lab Sample Id: 9JP3NE10	Client Id: B1M7C8	Test User	Contract Nbr MW6-SBB-A1	SAF Nb i	r Sdg Nbr: W05125	QC Type:	Moisture/ Solids%*:	Distilled Volume		***************************************		llection Date: 2007 08:23	
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Lab Sample Id: 9JP3NF10	Client Id: B1M7C5	Test User	Contract Nbr MW6-SBB-A1	SAF Nb S07-002	r Sdg Nbr: W05125	QC Type:	Moisture/ Solids%*:	Distilled Volume				llection Date: 2007 09:18	en e
Batch 7059187	Analyte H-3	CAS# 10028-17-8	Result 5.12E+03		CntU 2S 2.6E+02	TotU 2 S Q u 3.4E+02		TrcYield ·02 100.0	Method 906.0_H3_LSC	Alq Size 5.00E-03	Unit L	Analy Date/Time 03/10/2007 09:36	Act

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U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide. J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).

B Qual- Analyte was found in the associated laboratory blank above the MDC.

Monday, March 12, 2007 STL Richland QC Blank Report Lab Code: STLRL FormNbr: R FormatType: FEAD VersionNbr: 05 File Name: h:\Reportdb\edd\FeadiV\Rad\W05125.Edd, h:\Reportdb\edd\FeadiV\Rad\34658.Edd Sdg/Rept Nbr: W05125 Lab Sample Id: JP7WK1AB 34658 Collection Date: 02/23/2007 08:23 Client Id: NA Matrix: WATER WATER Sample On Date: Moisture/Solids%*: QC Type: **BLK** Received Date: 02/23/2007 SAF Nbr Contract Nbr Test User Case Nbr SAS Nbr Suffix Decant Distilled Volume File Id FSuffix RTyp MW6-SBB-A19981 AD Н Batch # / Result/ Tot/Cnt Analyt/ Qu-Tracer Spk Conc/ Analy Date/Time LCS Aliq RPD/ RER/ R Qc Type CAS# **Orig Rst** Unit Uncert 2S al MDC Yield %Rec Method Size/ Analyzed UCL. UCL LCL/UCL Typ 7059187 H-3 1.92E+01 pCi/L 1.4E+02 2.93E+02 100.0 906.0 H3 LSC 5.00E-03 03/10/2007 D BLK 10028-17-8 1.2E+02 L 01:26

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.

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B Qual- Analyte was found in the associated laboratory blank above the MDC.

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2

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.

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Monday, March 12, 2007 STL Richland QC Control Sample Report Lab Code: STLRL VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05125.Edd, h:\Reportdb\edd\FeadIV\Rad\34658.Edd FormNbr: R FormatType: FEAD Sdg/Rept Nbr: W05125 JP7WK1EM 34658 Lab Sample Id: Collection Date: 02/23/2007 08:23 WATER Client Id: NA Matrix: WATER Sample On Date: Moisture/Solids%*: B\$ QC Type: Received Date: 02/23/2007 SAF Nbr Contract Nbr Test User Case Nbr SAS Nbr Suffix Distilled Volume File Id FSuffix RTyp Decant MW6-SBB-A19981 AG Н Result/ LCS R Batch # / Analyt/ Tot/Cnt Qu-Tracer Spk Conc/ Analy Aliq Date/Time RPD/ RER/ Qc Type CAS# Orig Rst Unit Uncert 2S al MDC Yield %Rec Method Size/ Analyzed UCL UCL LCL/UCL Typ 7059187 H-3 2.49E+03 pCi/L 2.4E+02 2.96E+02 100.0 2.71E+03 906.0_H3_LSC 5.00E-03 03/10/2007 70 D BS 10028-17-8 2.0E+02 91.8 L 05:31 130

STL Richland
rptFeadRadEdd v3.68

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Lab Code: STLRL Monday, March 12, 2007 STL Richland QC Duplicate Report FormatType: FEAD FormNbr: R VersionNbr: 05 File Name: h:\Reportdb\edd\FeadIV\Rad\W05125.Edd, h:\Reportdb\edd\FeadIV\Rad\V05125.Edd JP3NE1CR Sda/Rept Nbr: W05125 34658 Lab Sample Id: Collection Date: 02/23/2007 08:23 Client Id: **B1M7C8** Matrix: WATER WATER Sample On Date: Moisture/Solids%*: QC Type: DUP Received Date: 02/23/2007 Test User SAF Nbr Contract Nbr Case Nbr SAS Nbr Suffix Decant Distilled Volume File Id FSuffix RTyp MW6-SBB-A19981 S07-002 AC H Batch # / Analyt/ Result/ Tot/Cnt Spk Conc/ Date/Time RPD/ RER/ LCS R Qu-Tracer Analy Aliq Qc Type CAS# **Orig Rst** Unit Uncert 2S al MDC Yield %Rec Method Size/ Analyzed UCL UCL LCL/UCL Typ 7059187 H-3 2.05E+04 pCi/L 9.2E+02 2.94E+02 100.0 906.0 H3 LSC 5.00E-03 03/10/2007 3.5 1.1 D DUP 10028-17-8 1.98E+04 4.7E+02 08:15 20.0 3

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STL	Data Review/Verification Checklist RADIOCHEMISTRY, First Level Review	3/12/2007 10:31:42 AM
ot No., Due Date: J7B2	40193; 03/12/2007	
Client, Site: 3848	68; PGW 615HANFORD HANFORD	
C Batch No., Method Test: 7059	187; RTRITIUM H-3 by LSC	
DG, Matrix: W05	25; WATER	
.0 Correction Calculation Protocol Use OK	ed.	Yes No N/A
.01 The Appropriate Methods Were U OK	sed To Analyze the Samples	Yes No N/A
02 Final Results Are in the Appropria	te Activity Units	Yea No N/A
03 Batch Contains the Required QC / OK	Appropriate for the Method	Yea No N/A
04 The Correct Tracer and QC Vials OK	Where Used in the Samples	Yea No N/A
	Before or After Fractionating the Sample	Yey No N/A
06 At Least the Minimum Sample Vol Analysis Volume => JP3NE1AA 5.00<		Yes No N/A
JP3NF1AA 5.00<10.00 Q:VB 07 The Correct Count Geometry was		Yes No N/A
Count Geometry => JP7WK1AF SVP1 JP7WK1AG SVP15/5<>SVP10/10 JP7WK1AA SVP15/5<>SVP10/10 JP7WK1AC SVP15/5<>SVP10/10 JP7WK1AD SVP15/5<>SVP10/10 JP7WK1AE SVP15/5<>SVP10/10 JP3NE1AA SVP15/5<>SVP10/10 JP3NE1AC SVP15/5<>SVP10/10	OR AL 3/12/07	
JP3NF1AA SVP15/5<>SVP10/10 Q:\	C Winimum Count Time or CRDL was Achieved.	Yeg No N/A
.09 Method Blank is within Control Lin	ilts,	Yea No N/A
1 Comments:		maka asa fanji defensioname pamanisi ne ngamin se ekono me ni ni sere ng netro pa i ni na panganisa na mangani neka a san
11 Matrix Blank is within Control Limio	Ss.	Yes No N/A
12 Method Blank(s) < QAS Limit Valu	e (No B Flag Necessary).	Yes No N/A
13 QAS Specified Duplicate Equation	Value within Control Limits.	Yeş No N/A
OK (RPD) 14 LCS within Control Limits.		Yea No N/A
OK 15 MLCS within Control Limits.		Yeş No N/A
OK 16 MS within Control Limits.		Yes No N/A
No Matrix Spike Samples (MS) found in 17 Tracer within Control Limits.	n Batch!	Yes No N/A
No Tracers found in Batch! 18 Samples are above Minimum Trace	er Yield (No Failed Samples)	Yes No N/A
No Tracers found in Batch! 19 Sample Specific MDC <= CRDL.		Yea No N/A
OK . 2 Comments:		<u>V</u>
21 Result < Lc, Activity Not Detected	U Flag.	Yes No N/A
No Limit Specified! 22 Result < Mdc, Activity Not Detecte No Positive Results	d, U Flag.	Yeş No N/A
No Positive Results OK Calc IDL Not Calculated		V.
TL Richland		
AS_RADCALCv4.8.26		Page 1

8.23	Result <= Action Level, when Defined.	Yeş	No	N/A
	OK; No Action Level Found => H-3			
~ ~ /	OK; No-Callin Level Found => H-3		**********	****
	Result + 3s >= 0, Not Too Negative.	Yes	No	N/A
	OK :	W.		-
	Counting Spectrum are within FWHM Limits.	Yes	No	NA
	No FWHM found in Batch Data!			V
8.26	Instruments have Current Calibrations.	Yes	No	N/A
8.27	Correct Count Library Used.	Yes	No	N/A
	No Count Library found in Batch Data!			V
8.28	Instrument Background within Limits at Time of Counting. (Not Applicable to this version. To be developed in later versio	nices	No	N/A
8.29	Instrument Check Source within Limits at the Time of Counting. (Not Applicable to this version. To be developed in later	V X es ic	onto.	N/A
			-	
8.3	Comments:	***************************************		
8.31	Results Blank Subtracted as Appropriate.	Yes	No	N/A
	OK .			
nd champaned				**************

First Level Review

STL Richland

QAS_RADCALCv4.8.26

STL_RICHLAND

Date

3/12/07

Page 2



Data Review Checklist
RADIOCHEMISTRY
Second Level Review

A. Sample Analysis	Yes (V)	No(V)	N/A(V)
Y'S TAIGHTSTATA I STITET & DED.			1021(1)
. Are the sample yields within acceptance criteria?			
2. Is the sample Minimum Detectable Activity < the Contract		<u> </u>	
Detection Limit?			
3. Are the correct isotopes reported?			
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the			
Contract Detection Limit?			
2. Does the blank result meet the Contract criteria?			
3. Is the blank result < the Contract Detection Limit?	1		
4. Is the blank result > the Contract Detection Limit but the sample			
result < the Contract Detection Limit?			
5. Is the LCS recovery with contract acceptance criteria?			
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection			
Limit?		-	
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance			
criteria?			
C. Other			
1. Are all Nonconformances included and noted?			
2. Are all required forms filled out?			
3. Was the correct methodology used?			
4. Was transcription checked?			
5. Were all calculations checked at a minimum frequency?			
6. Were units checked?	34		,

C.O.C.# PNNL 778240193 W0 5125 Due 03 09.07 S07-002-17 CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST Page $\underline{1}$ of $\underline{1}$ MSIN FAX Collector Contact/Requester Telephone No. R. T. SICKLE 509-376-5056 Dot Stewart Purchase Order/Charge Code SAF No. Sampling Origin 807-002 Hanford Site Ice Chest No. WM-1 Project Title Temp. HNF-N-506-4 SURV, FEBRUARY 2007 Shinned To (Lab) Method of Shipment Bill of Lading/Air Bill No. Severn Trent Incorporated, Richland Govt. Vehicle Offsite Property No. Protocol Priority: 15 Days **PRIORITY** SURV SPECIAL INSTRUCTIONS Total Activity Exemption: Yes V No POSSIBLE SAMPLE HAZARDS/REMARKS Hold Time All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) closure of 14 days. WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure. Preservative No/Type Container Sample Analysis Sample No. Lab ID Date Time 1x1000-mL P 906.0 H3 LSC: Tritium (1) None B1M7C8 2-23-07 0823 1x20-mL P Activity Scan None B1M7C8 TP3NE

	·				4
Reliamished By Fluor Hanford R. T. SICKLE	FEB 2 3 2007	Received By Finds	Print Sign	FEB 2 3 2007	Matrix * S = Soil DS = Drum Solid
Relinquished By	Date/Time	Received By ()		Date/Time	SE
Relinquished By	Date/Time	Received By		Date/Time	O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By		Date/Time	
FINAL SAMPLE Disposal Method (e.g., Return to DISPOSITION	o customer, per lab procedure, used in pro	ocess)	Disposed By		Date/Time

PNNL J	18240 WO51	0/9 25 ue	-03-09	.07	CHAIN OF	CUSTODY/S	SAMPLE	ANALYSIS F	REQUEST		# S07-002-14 Page 1 of 1
Collector	——————————————————————————————————————	ior He T. SIC	Inford¹ :kr =		Contact/Re	auester			Telephone No.	MSIN	FAX
SAF No.	, 1.	1. O(C	'1 /CL:		Dot Stew Sampling C		***************************************		509-376-5056 Purchase Order/		
S07-002				**********	Hanford	Site	,		F		
Project Title SURV. FEBRUA	DV 2007					HNF-N-S	506-4		Ice Chest No.	M-1 Ten	ıp.
Shinned To (Lab)	RY 2007				Method of				Bill of Lading/Ai		
Sevem Trent Inco	omorated Ric	bland.	CHONGO CONTRACTOR DE LA C	10010111111111111111111111111111111111	Goyt. Ve	hicle			OCC 11 D	31.	
Protocol SURV			,			Pric	ority: 15 Days	PRIORITY	Offsite Property		
POSSIBLE SAMP	ioactive Materia	l at cor	centrations that	are not regulat	led for transportation per 49	CFR but are not	closure of 14 days.	SCF: Batch all PNNL sampl		, G, I, S, and W 07 SAFs in	xemption: Yes Y No L to one SDG, not to exceed SDG
Sample No.	Lab ID	*	Date	Time	No/Type Container			Sample Analysis			Preservative
B1M7C5		W	2-23-07	0918	1x1000-mL P	906.0_H3_LSC: T	ritium (1)			None	
B1M7C5	<u> </u>	W	2-23-67	0918	1x20-mL P	Activity Scan				None	
	 	-	2001	0770							
		 					MARIE WAR AND		**************************************		
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	<u> </u>	<u> </u>			<u> </u>	1				1	
FINCE HARRISTS Y	. Print		Sign	*************************************	Date/Three/ci	Received By	Print	Sign	Date/Time		Matrix *
R. T. SICKLE				FEB 2 3	Date/Time	Fa Janka Received By	CRICD	FEB 2	3 2007 (2) Date/Time	S = Soft SE = Sedin	DS == Drim Solid
Relinquished By	·		v					,		SO = Solid SI. = Sinds W = Water	I, = Liquid
Relinquished By					Date/Time	Received By			Date/Time	O = Oil A = Air	V = Vegetation X = Other
Relinquished By	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			-	Date/Time	Received By			Date/Time		
FINAL SAMPL DISPOSITION		Method	I (e.g., Return to	customer, per	lab procedure, used in proc	eess)		Disposed By		-	Date/Time



Sample Check-in List

	Client:		SDG #:_W	05/35 NA[] SAF	#: <u>507-002</u> NA[]
	Work	Order Number: <u>J</u>	78240193	Chain of Custody # _	307-002-11,14,1
	Shippi	ng Container ID:_		Air Bill #	
	1.	Custody Seals o	n shipping container int	act?	[A[] Yes [] No[]
	2.	Custody Seals d	ated and signed?	N	[A [] Yes [] No []
	3.	Chain of Custod	y record present?		Yes [JNo[]
	4.	Cooler temperat	ure:NA []	5.Vermiculite/packing ma	terials is NA [t] Wet [] Dry
, j.	6.		oles in shipping containe		
	7.	Sample holding	times exceeded?	N	A [] Yes [] No []
	8.	Samples have:		_	
		custody se	als	hazard lappropr	iate samples labels
	9.	Samples are:in good cobroken	radition	leaking have air (Only for sam	bubbles ples requiring head space)
	10.	Sample pH taker	n? NA[] pH<	2[] pH>2[] adjus	ted pH[]
	11.	Sample Location *For documentat	, Sample Collector Liste ion only. No corrective	ed? * action needed.	Yes (No[]
	12.	Were any anoma	lies identified in sample	receipt?	Yes[] No[L]
	13.	Description of ar	omalies (include sampl	e numbers):	
	Sample	Custodian:	En Dorb	Date: 21	123/07 1200
	Clie	ent Sample ID	Analysis Requested	Condition	Comments/Action
	Client In	formed on	Ъу	Person confacted	1
		action necessary; pro			
1	Project N	(anager		Date	

	2/28/2007 7:51:18 AM 384868, Pacific Northwest National Labora		Sample Pre		\nalysis	-	Balance Id: Pîpet #:	12445
RICH	Pacific Northwest National Lab AnalyDueDate: 03/09/2007		um by Liquid Scir ENT: HANFORD	ıt	PRIOR	TTY	Sep1 DT/Tm Tech:	31-07 om
CHLAND	Batch: 7059187 WATER SEQ Batch, Test: None All Tests: AR	pCi/L 36, 7059187 ARS6,	PM,	Quote: SA ,			Sep2 DT/Tm Tech:	
U	SEQ BAIGH, Test. None All Tests. Are	30, 7039101 AR30,				20012 20012 20012 20012 20012 20012 20012 20012 20012 20012 20012	Prep Tech:	
	Work Order, Lot, Total Sample DateTime Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On C (24hr) Circle	11	
	1 JP3NE-1-AA							
	J7B240193-1-SAMP 02/23/2007 08:23	AmtRec: 20ML,LP	#Containers: 2			Scr:	Alpha: -1.24E-04 uCVSa	Beta: 6.50E-04 uCi/Sa 1.4E-01L
	2 JP3NE-1-AC-X							•
	J7B240193-1-DUP 02/23/2007 08:23	AmtRec: 20ML,LP	#Containers: 2			Scr:	Alpha: -1.24E-04 uCi/Sa	Beta: 6.50E-04 uCi/Sa 1.4E-01L
	3 JP3NF-1-AA							
	J78240193-2-SAMP 02/23/2007 09:18	AmtRec: 20ML,LP	#Containers: 2			Scr:	Alpha: 2.42E-05 uCi/Sa	Beta: 1.15E-04 uCl/Sa
	4 JP7WK-1-AA-B			<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>				
	J7B280000-187-BLK 1	AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
	5 JP7WK-1-AC-C				,	. ,		, ·
	J7B280000-187-LCS 02/23/2007 08:23	AmtRec:	#Containers: 1			Scr.	Alpha:	Beta:
	6 JP7WK-1-AD-BX							
	J7B280000-187-MBLK 02/23/2007 08:23	AmtRec:	#Containers: 1			Scr.	Alpha:	Beta:
	7 JP7WK-1-AE-CM							
	J7B280000-187-MLCS 02/23/2007 08:23	AmtRec:	#Containers: 1			Scr.	Alpha:	Beta:
	STL Richland Key: In - Initial Amt, fi - F Richland Wa. pd - Prep Dt, r - Refe	inal Amt, di - Diluted Amt, rence Dt, ec-Enrichment C			ISV -	- Insufficient Volume	e for Analysis	WO Cnt: 7 ICOC v4.8.26

Sample Preparation/Analysis PRIORITY AR H-3 Prp/SepRC5007

Balance Id:

Pipet #: _

pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ICOC v4.8.26

Ħ	•			-3 Fibioepicososi				Pipet #:	
ICHI	AnalyDueDate: 03/09	3/2007		ritium by Liquid So LIENT: HANFORD	eint		Se	ep1 DT/Tm Tech:	3-1-07pm
AA	Batch: 7059187 SEQ Batch, Test: None		pCi/L				Sc	p2 DT/Tm Tech:	
ð	SEQ Batch, Test: None		·		CONTRACTOR OF THE CONTRACTOR O	100 March 100 Ma	CONTRACTOR OF THE CONTRACTOR O	Prep Tech:	
	Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count' Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
	8 JP7WK-1-AF-BN				· · · · · · · · · · · · · · · · · · ·				
	J7B280000-187-IBLK	E II 苯酚苯 被打			***************************************				
	02/23/2007 08:23	Carigoral Carigoral	AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
	9 JP7WK-1-AG-BN								
	J7B280000-187-IBLK	5) XW (0 WIZ						anne en proces, con espera de referença que apopuny y procham y procham las	****
	02/23/2007 08:23	ACCOUNTS OF THE PROPERTY OF T	AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

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\cdot	/ I I I	111	c	11	10	

	es for Batch: 3, Pacific Northwes	st National	Laboratory	Pacific	Northwest National Lab, SA , 57671
JP3NE1AA-S	SAMP Constituent Li	st:			
H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
JP7WK1AA-I	BLK:				
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
JP7WK1AC-I	LCS:				
H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
JP7WK1AD-1	BLK:				
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
JP7WK1AE-I	ALCS:				
H-3	RDL:400	pCi/L	LCL:70	UCL:130	RPD:20
JP7WK1AF-I	IBLK:				
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
JP7WK1AG-1	IBLK:				
H-3	RDL:400	pCi/L	LCL:	UCL:	RPD:
TD28781 55-6	SAMP Calc Info:				
f	t Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	: N Sci.Not.: Y ODRs: B
JP7WK1AA-I					
	rt Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt .:	: N Sci.Not.: Y ODRs: B
TP7WK1AC-I					
	rt Level (#s).: 2	Decay t	o SaDt: Y	Blk Subt.:	: N Sci.Not.: Y ODRs: B
					NO CALO
STL Rich	land Key: In - Initial	Amt, fi-Fin	al Amt, di - Dilu	ted Amt, s1 - Sep	p1, s2 - Sep2 Page 2 ISV - Insufficient Volume for Analysis WO Cnt: 9

Richland Wa.

2/28/2007	7:51:21	AM
	-	

Sample Preparation/Analysis ORITY AR H-3 Prp/SepRC5007

Balance Id:	
Dinot #	

AnalyDueDate: 03/09/2007

S6 Tritium by Liquid Scint 51 CLIENT: HANFORD

Sep1 DT/Tm Tech:

Batch: 7059187 pCi/L Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

					1						
Work Order, Lot, Sample DateTime	Tota Amt/U	13	Initial Aliquo Amt/Unit	t	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle		CR Analyst, Init/Date	Comments:
JP7WK1AD-MBLK: Uncert Level JP7WK1AE-MLCS:	(#s).: 2	Decay	to SaDt: Y	Blk s	Subt.: N	Sci.Not.: Y	ODRs: B				
Uncert Level P7WK1AF-IBLK:	(#s).: 2	Decay	to SaDt: Y	Blk s	Subt.: N	Sci.Not.: Y	ODRs: B				
Uncert Level P7WK1AG-IBLK:	(#s).: 2	Decay	to SaDt: Y	Blk S	Subt.: N	Sci.Not.: Y	ODRs: B			x.	•
Uncert Level	(#s).: 2	Decay	to SaDt: Y	Blk s	Subt.: N	Sci.Not.: Y	ODRs: B				
						App	roved By		**********************	Date:	

Page 3

3/12/2007 10:31:11 AM

ICOC Fraction Transfer/Status Report ByDate: 3/12/2006, 3/17/2007, Batch: '7059187', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	A	ccepting		Comments
7059187	gomennement (T. Serve Mehidedelik		and the state of t	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	HITTER PROPERTY OF THE CONTROL OF TH	
AC		CalcC	McDowellD	3/1/2007 10:54:	27	
SC			wagarr	IsBatched	2/28/2007 7:52:19 AM	ICOC_RADCALC v4.8.26
SC			McDowellD	lnSep1	3/1/2007 10:54:27 AM	RICH-RC-5007 REVISION 6
SC			McDowellD	Sep1C	3/7/2007 1:53:59 PM	RICH-RC-5007 REVISION 6
SC		*	StringerR	InCnt1	3/7/2007 2:34:17 PM	RICH-RD-0001 REVISION 3
SC			StringerR	CalcC	3/10/2007 1:14:12 PM	RICH-RD-0001 REVISION 3
4C			McDowellD	3/7/2007 1:53:5	9 PM	
4C			StringerR	3/7/2007 2:34:1	7 PM	
4C	•		StringerR	3/10/2007 1:14:	12 PM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt:4 ICOCFractions v4.8.26